

Blockchain in the Current Government IT Environment

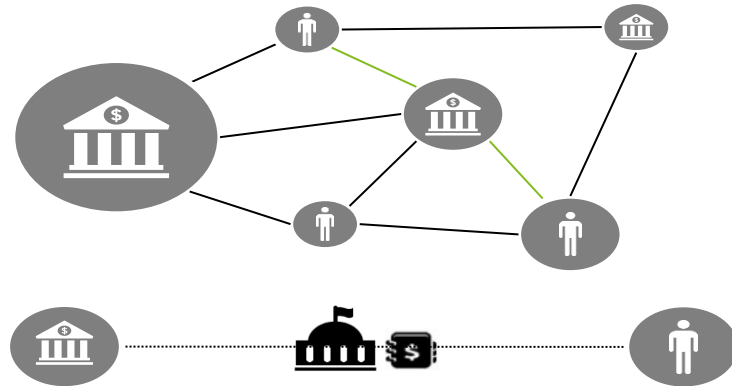
October 2018

What is Blockchain?

Essence of blockchain technology

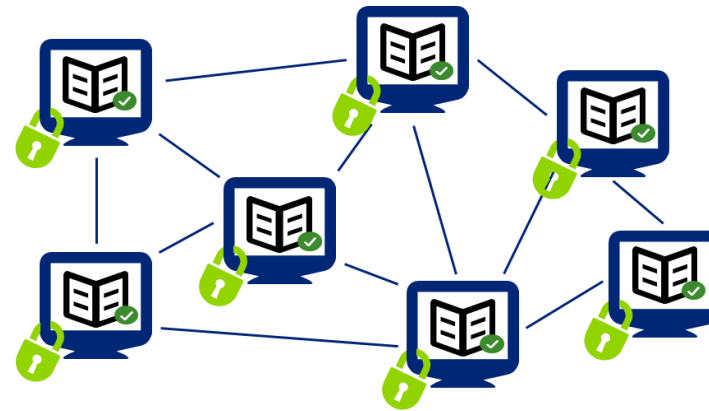
- A blockchain is a record, or ledger, of digital events
- It's "distributed" between many different parties
- It is only updated by consensus of the participants in the system
- Once recorded, information can never be changed
- The blockchain contains a certain and verifiable record of every single transaction ever recorded

Current System



- **Central authorities** transfers actual value between two parties
- **Multiple intermediaries** and **record-keeping** are required to create trust

Blockchain System



- **Distributed** network of computers (nodes) that maintains a shared source of information
- Transaction data is **immutable**
- **Trust** is enabled by **cryptographic** algorithm

Fundamentals

Blockchain's unique value proposition can be best captured in solutions where **multiple independent parties** need to interact with, update, or reference common set of data

Typical characteristics of blockchain use-cases:



Shared Data

Structured repository of information for multiple independent parties



Multiple Writers

More than one entity generating transactions that modify the database



Immutable

Un-editable records provide strong auditability



Need for Trust

Level of mistrust between the entities writing to the database (e.g., one user will not accept the "truth" as reported by another user)

The level of trust or mistrust helps determine the network structure



Transaction Interaction

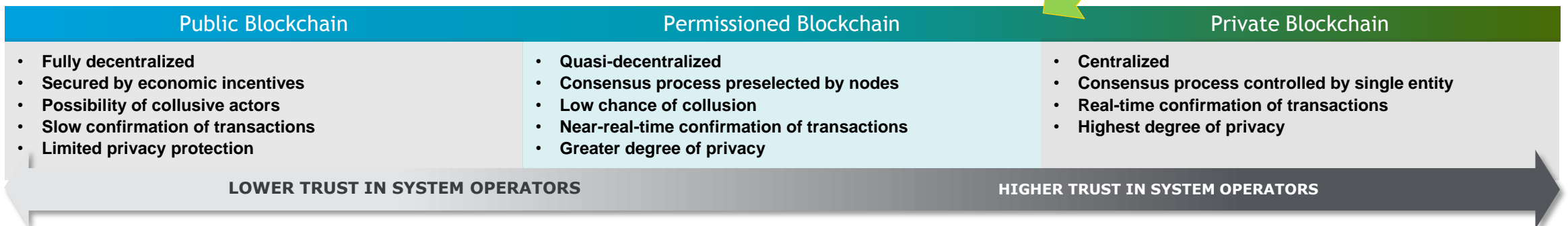
Interaction or dependency between the transactions created by different entities (smart contracts)



Opportunity for Disintermediation

Lack of trusted intermediary or central gatekeeper to verify transactions

Blockchain network structures:



States Looking Towards Blockchain: Illinois & Delaware



Illinois has one of the most mature, formalized blockchain project portfolios at the state-government level

- **The Illinois Blockchain Initiative** launched on November 30th, 2016 explores blockchain and distributed ledger technology
 - A consortium of Illinois state and county agencies including: the State's Department of Commerce and Economic Opportunity (DCEO), Department of Financial and Professional Regulation (DFPR), Department of Insurance (DOI), Department of Innovation & Technology (DoIT) and Cook County's Recorder of Deeds
- **Working on 5 pilots:**
 1. Cook County's blockchain-based property title transfer experiment
 2. Working with a community college to reflect some of its course credentials through a blockchain
 3. Working with health provider registries to reconcile and ensure the accuracy of multiple data entry points
 4. Energy credit marketplace to track tradeable credits generated by creating 1 Megawatt-hour of electricity through wind turbines or solar panels
 5. Vital records pilot with a hospital to start a blockchain with a birth record

Source: "Illinois Builds Momentum for Blockchain"; Feb 2018; <https://gcn.com/articles/2018/02/05/illinois-blockchain.aspx>



Delaware is an early adopter leading several Blockchain initiatives at the state-government level

Delaware Blockchain Initiative (DBI) was established in May 2016 to attract blockchain businesses and give regulatory certainty to innovative companies

- The initiative aims to migrate corporate registration to blockchain-enabled registries for Delaware, home to 66% of Fortune 500 companies
- The Delaware Public Archives will be among the first to use the distributed technology to archive and encrypt government archives
- "Smart Uniform Commercial Code (UCC) filings" are expected to be rolled out late 2017
- **Passed amendments to state law that make explicit the right to trade stocks on a blockchain in July 2017**
- **State officials in Delaware are exploring incorporating blockchain into the corporate filing process**

Source: "Deloitte to Test Blockchain for Corporate Filings"; July 2018; <https://gcn.com/articles/2018/07/10/delaware-blockchain.aspx>

Governor Markell Launches Delaware Blockchain Initiative; May 2016; <https://www.prnewswire.com/news-releases/governor-markell-launches-delaware-blockchain-initiative-300260672.html>

States Looking Towards Blockchain: Legislation*

Arizona

- In April 2018 signed a bill that allows corporations to hold and share data on the blockchain
- In 2017 passed a bill that explicitly defines and supports blockchain technology for public use, while declaring that all data tied to a blockchain is an electronic record, which is acceptable for use by the state

California

- In August 2018 finalized a bill to form a working group to look into the benefits of blockchain
- California forbids organizations to sell raffle tickets for cryptocurrency, the first time a State has outlawed a cryptocurrency from being used in a specific way.

Delaware

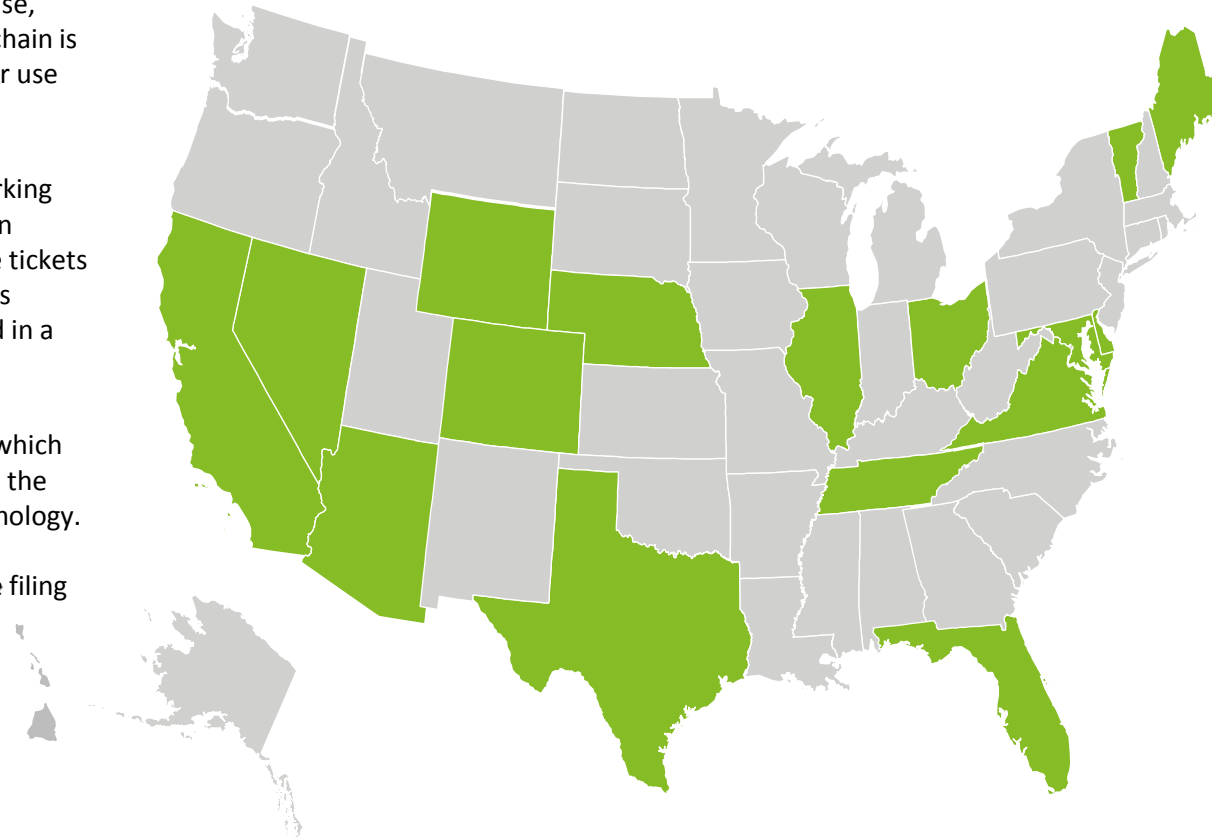
- Delaware launched a blockchain initiative, which encourages the state and businesses within the state to explore and utilize blockchain technology.
- State officials in Delaware are exploring incorporating blockchain into the corporate filing process

Florida

- The Florida state government created a cryptocurrency czar position to enforce cryptocurrency regulation

Illinois

- Illinois launched a blockchain initiative, which will be used to determine if blockchain can be leveraged to create more efficient, integrated and trusted state services.



Maine

- In 2017 instigated a 90-day field study to learn the effects of, “Using Blockchain Technology in Conjunction with Paper Ballots in Maine Elections.” Results from the study were presented to the Senate in December.

Nevada

- In 2018 provides a simple definition of blockchain under the state’s Uniform Electronic Transactions Act, The new law also bars local governments from imposing any additional taxes or fees on the use of blockchain

Ohio

- In 2018 passed a bill to legally recognize blockchain data
- At a press conference in 2018, Ohio House of Representatives Speaker Ryan Smith convened a group to discuss the state’s intent to attract both blockchain developers and companies.

Tennessee

- In 2018 signed a bill that legally recognizes blockchain data and smart contracts under state law.

Texas

- The city of Austin is prototyping a blockchain identity platform to assist the homeless population in the city

Wyoming

- In 2018 passed legislation to make limited liability corporation laws friendlier to blockchain companies
- Created the Wyoming Blockchain Coalition

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